

What is claimed is:

1. An air filter cartridge comprising:
 - (a) a z-filter media pack comprising fluted media secured to facing media;
 - (b) a preform having a portion circumscribing the media pack; the preform including a housing seal support portion;
 - (c) a housing seal arrangement; the housing seal arrangement including:
 - (i) a housing seal portion secured to the housing seal support; and,
 - (ii) a media pack sealing portion circumscribing the media pack and sealing the preform directly to the media pack; the media pack sealing portion being integral with the housing seal portion.
2. An air filter cartridge according to claim 1 wherein:
 - (a) the housing seal support includes a plurality of seal flow apertures therein; and,
 - (b) the seal material extends through the seal flow apertures.
3. An air filter cartridge according to any one of claims 1 and 2 wherein:
 - (a) the z-filter media pack is a coiled z-filter media pack.
4. An air filter cartridge according to claim 3 wherein:
 - (a) the preform has a first end comprising:
 - (i) a radially outwardly directed housing seal support portion;
 - (ii) a sidewall portion; and,
 - (iii) a funnel transition portion between the sidewall portion and the radially outwardly directed housing seal support portion; and,
 - (b) the housing seal arrangement media pack sealing portion includes seal material between the funnel transition portion and the media pack.

5. An air filter cartridge according to claim 4 wherein:
 - (a) the housing seal portion comprises an axial pinch seal.
6. An air filter cartridge according to claim 5 wherein:
 - (a) the housing seal portion includes housing engagement seal regions on opposite sides of the radially outwardly directed housing seal support portion of the preform.
7. An air filter cartridge according to claim 6 wherein:
 - (a) the z-filter media pack has first and second, opposite, flow faces;
 - (b) a housing seal surface of the housing seal portion is positioned spaced from the first flow face by a distance of no greater than 15 mm;
 - (c) the housing seal arrangement includes an integral edge seal portion extending from the housing seal portion to an end of the media pack adjacent the first flow face.
8. An air filter cartridge according to claim 7 wherein:
 - (a) the funnel transition portion of the preform extends at an angle, relative to the media pack, within the range of 30° to 60°.
9. An air filter cartridge according to any one of claims 1 - 8 wherein:
 - (a) the preform has a second end opposite the first end; and,
 - (b) the preform second end includes grid work extending thereacross;
 - (i) the grid work also extending across the second flow face of the media pack.
10. An air filter cartridge according to claim 9 including:
 - (a) a central core member secured to the grid work and projecting into the media pack.
11. An air filter cartridge according to claim 10 wherein:
 - (a) the central core includes a hollow receiver section which projects into the media pack a distance 30% of an axial length of the media pack.

12. An air filter cartridge according to claim 11 wherein:
 - (a) the central core hollow receiver section has an outside aspect ratio of at least 5:1; and,
 - (b) the central core hollow receiver section includes a divider therein.
13. An air filter cartridge according to claim 12 wherein:
 - (a) the central core includes a non-hollow central blade secured to the central core hollow receiver section and projecting into the media pack.
14. An air filter cartridge according to claim 13 wherein:
 - (a) the non-hollow central blade has a generally triangular outer perimeter shape.
15. An air filter cartridge according to claim 14 wherein:
 - (a) the generally triangular outer perimeter shape of the non-hollow central blade has an apex that is off-set from a longitudinal axis of the preform.
16. An air filter cartridge according to any one of claims 14 and 15 wherein:
 - (a) the media pack has an obround shape; and,
 - (b) the media pack has a center sealed closed by a winding bead adjacent the first flow face.
17. An air filter cartridge according to claim 16 wherein:
 - (a) the preform is a molded piece including, integrally: the housing seal support portion; the side wall portion; the funnel transition portion; the grid work; and, the central core.
18. An air filter cartridge according to claim 17 wherein:
 - (a) the media pack has an axial length of at least 140 mm;
 - (b) the media pack has a longer cross-sectional axis of at least 190 mm and a shorter cross-sectional axis of at least 110 mm.

19. A method of making an air filter cartridge; the method including steps of:
 - (a) positioning a preform and a coiled z-filter media pack into a mold with a portion of the preform circumscribing the media pack; and
 - (b) molding a housing seal resin material to the preform with an integral portion of the housing seal material sealing the preform to the media pack completely around the media pack.
20. A method according to claim 19 wherein:
 - (a) the housing seal resin material comprises polyurethane; and,
 - (b) the preform includes a housing seal support portion having apertures therein through which housing seal resin material flows, during molding, to provide mechanical interlock.
21. A method of making an air filter cartridge; the method including steps of:
 - (a) coiling a media arrangement comprising a fluted sheet secured to a facing sheet to form a media pack having the facing sheet directed to an outside; and,
 - (b) inserting the media pack into a preform having a core including a blade positioned to become inserted into the media pack during the step of inserting.